4.2.11.Mission Utility and Integration

4.2.11.1.Purpose

The purpose of this test is to qualitatively assess the overall utility of the FLIR for the assigned mission and the integration and compatibility of the FLIR performance parameters, controls and display within the airplane.

4.2.11.2.General

The mission utility and integration test is the most important of the series. During this test, mission relatable ingresses and attacks will be performed to qualitatively assess the FLIR. The quantitative assessments of the previous tests will be used to back up and justify the qualitative determinations made during the ingresses and attacks. Utility refers to the overall usefulness of the FLIR as it is implemented, as an aid to the mission. The FLIR parameters must match the expected operational requirements. Integration refers to the way the FLIR has been blended into the entire airborne system. From the evaluator's stand point, this characteristic is intimately tied into the area of human factors discussed in the radar theory section. Integration is particularly important to the FLIR. Due to the inherent shorter ranges of FLIRs, the integration must be sufficient to ensure quick and effective radar or navigation handoffs to the FLIR. The EO system's inherent angular accuracy can then be used to complement the other aircraft systems during terminal phases of attack.

Additionally, the FLIRs "picture like" display makes it a natural adjunct for navigation and detection of targets of opportunity. Integration between the aircraft navigation system, attack radar and guided weapons is necessary in this case.

The qualitative assessments in mission relatable scenarios specifically called for in previous tests will also be performed during these ingresses and attacks. Care should be taken; however, to ensure that the evaluator does not get too involved in recording qualitative comments to the detriment of watching the progress of the ingress and attack and evaluating the FLIR. A conscious effort should be made not to get too involved in looking for specifics on at least the first run to ensure that an overall qualitative assessment is made. A voice recorder can be used to make comments without distracting the evaluator from the display or the outbound run can be used to record results. Multiple runs should be performed using different radar modes and mode combinations in as many different types of attacks as possible. The most likely scenarios should be performed first and the others performed as flight time allows.

4.2.11.3.Instrumentation

Data cards are required for this test. A voice recorder is highly recommended.

4.2.11.4.Data Required

Record qualitative comments concerning the utility and integration of the FLIR. Record the effects of the parameters determined in previous tests during the ingresses and attacks as called for at the end of each test procedure.

4.2.11.5.Procedure

Select a mission relatable target in the test area that allows for a 35 to 40 nm ingress to the target location. Descend to a normal ingress and attack altitude and set an airspeed near the sea level limit of the test airplane. Head inbound to the target and select a fuselage referenced stabilization mode and WFOV for use in FLIR navigation. Perform FLIR navigation inbound (for instance following a river or ridge line to the target) and search for the target with the FLIR. Update the FLIR pointing angle as required, switching to the geostable mode as desired. Find the target and select the geostable mode and NFOV, updating the cursor placement as required. Execute an iron bomb weapon delivery. After overflight, turn outbound, returning to FLIR navigation and fly to the start point. Repeat the ingress and attack using different delivery modes and if available, different target types.

4.2.11.6.Data Analysis and Presentation

Relate the qualitative deficiencies noted to their effects upon the performance of ingresses and attacks. Note any limitations upon tactics imposed by the FLIR parameters, utility or integration. The FLIR should not be driving tactics. Use the applicable results from previous tests to support the qualitative results.

4.2.11.7.Data Cards

A sample data card is presented as card 67.

CARD NUMBER _____TIME _____PRIORITY L/M/H

FLIR MISSION UTILITY AND INTEGRATION

[DESCEND TO ___ FEET AGL AND SET MACH=__. SELECT FUSELAGE REFERENCED MODE AND WFOV.

START AT _____ AND FLY INBOUND TO THE _____ TARGET, PERFORMING FLIR

NAVIGATION. ACQUIRE THE TARGET AND SWITCH TO GEOSTABLE MODE AND NFOV. PERFORM A

SIMULATED _____ DELIVERY. TURN OUTBOUND AND NAVIGATE BACK TO THE START POINT.

REPEAT WITH THE _____ TARGET AND _____ DELIVERY.]

NOTES:

Card 67: FLIR Mission Utility and Integration Data Card